

Diagnosis of Mental Defect in  
Children, and Mental  
Tests as an Aid

A. C. Rogers, M. D.  
Faribault, Minn.

Reprinted from the Journal of the American Medical Association,  
Vol, LXI, No. 36., December 27. 1913.  
(See Note on foot of page 1)

## DIAGNOSIS OF MENTAL DEFECT IN CHILDREN, AND MENTAL TESTS AS AN AID.\*

A. C. ROGERS, M. D. FARIBAULT, MINN.

Ordinary standards for diagnosis inadequate for ordinary practitioner.

The physician may come in various ways in contact with mental deficiency of varying degrees, and his ability to diagnose a given case will often be taxed severely unless he keeps clearly in mind the essential nature of the condition and brings to his aid all available diagnostic means.

Every physician of experience recognizes the undirected and shifting gaze, the lack of prehensile grasp and the general failure of response to external stimuli through the special senses that indicate idiocy in the infant. He may also recognize the group of symptoms that indicate some form of primary dementia.

He is, however, aware that the great majority of children that show mental abnormality are neither idiotic nor affected with an psychosis and that their condition is not even included in the well-recognized types, usually associated with mental deficiency, such as cretinism, mongolianism, hydrocephalus, microcephalus, etc. He has little assistance from the common text-books and he must be content to explain the condition in terms of such popular phrases as 'a little queer,' 'rather backward,' 'not quite like other children,' or something equally indefinite. It is not at all uncommon for a physician to tell the parents of a mental defective that the difficulty will pass away at puberty, or to recommend a course of special training with a view to restoring the child to a normal condition, overlooking entirely the essential nature of the defect.

To reduce the problem to its simplest form let us emphasize the following facts:

Nature of mental deficiency.

1. Mental deficiency is a condition resulting from physical deficiency or impairment in the brain and nervous system which becomes manifest during the developmental periods of infancy and childhood, and is neither curable nor outgrowable, and is not to be confused with forms of pedagogic retardation from remedial causes.

\*Read in the Section on Diseases of Children of the American Medical Association, Minneapolis, June, 1913. under caption "The Desirability of Early Diagnosis of Mental Defect in Children and Mental Tests as an Aid."

2. It is not, when uncomplicated, to be confused with insanity which represents an alienation from a normal condition usually after mental development has been completed.

3. It may be complicated with a psychosis or epilepsy or other disorder, functional or organic, but when this is the case, the mental retardation or degeneration naturally receives secondary consideration and is usually the result of the disease, or at least, they owe their origin to a common cause.

Basis of scientific diagnosis comparison with developing normal child.

4. It follows from the foregoing that the diagnosis of mental defect is made by comparing the reactions of the patient to his surroundings with those of the average normal child. When a person experienced in handling mental defectives is called on to diagnose a case, he immediately seeks as complete a knowledge of the history of the activities of the child as may be necessary to make the comparison clear; the less the mental defect, the more complete the history required; the reactions in the home, on the playground and in the school form the basis for diagnosis rather than symptoms observed by casual direct examination.

The problem psychologic.

Thus the problem, as ordinarily presented to the physician—and it is usually the family physician who first discovers it, or is first consulted concerning the child that is "not right" mentally—is a psychologic one. Whether or not any definite pathologic condition might previously have been discernible, it goes without saying that in the great majority of cases of this kind, no definite lesion can be discovered that accounts for the mental condition—and it is the mental condition that causes his advice to be sought—and so he is at a loss for any standard by which to make his own mental picture of the case clear, to say nothing of meeting the anxious inquiries of parents and friends with a satisfactory diagnosis and prognosis, unless there is a profound or near profound idiocy or a marked psychosis. It is here that the system of measuring intelligence comes into service, and the Binet-Simon tests afford the best means so far devised for this purpose. They are rapidly serving to standardize mental retardation and defect. They represent a system of about fifty-five procedures to which the reactions of the child give the examiner as much information concerning his intelligence as the longer and more indirect methods, which even the expert must otherwise employ. While the system is entirely empirical, it is the selected result of work with normal and abnormal children during a

The Binet-Simon Tests.

period of twenty years. To better appreciate their *raison d'etre* and their application, one should note the following basic principles involved in the child's development.

Periods of child's mental evolution.

1. Psychologists teach us that the evolution of the intellect, using the term in the sense of capacity for knowing, is completed in children at about 13 years of age or 15 years as a possible maximum. During the evolutionary period the child is growing in capacity month by month and year by year, more rapidly during infancy and at a lessening rate in later childhood until it ceases at the end of the period stated.

Mental deficiency—a condition of arrested evolution.

2. It is quite evident from this that if from any cause, whether it be an inherited deficiency in germ cell potency, or toxic or traumatic influence during fetal life, infancy or early childhood, this evolution be interfered with, the child's mental capacity is lessened. The mental evolution may cease at an early period—or rather, it may never get under way, as in idiocy; or there may be a simple slowing down so that the child's capacity at any age below 13 is less than that of a normal child at the corresponding age, and its capacity at 13 (or at least 15) never increases. As the system of measuring intelligence enables the qualified examiner to determine the mental age of the child, it is obvious that if its development be retarded, the amount of retardation will be expressed by the difference between the mental age and the chronologic age, if the child is under 13, or 13 less the mental age if over 13.

Reliability of tests.

As to reliability of tests it is unnecessary here to say more than that while there is considerable difference of opinion in regard to the relative value and proper age adaptation of certain particular tests, these are minor details. Goddard and Kuhlmann, who have done more work with the tests in this country than any other psychologists, as well as others, like Huey, Wallin, Towne, Terman and Childs, who have done enough to speak with authority, agree as to their general reliability.

Qualifications of examiners. (1)

As to the qualifications of an examiner, when the tests were introduced into this country by Goddard, there was considerable apprehension in regard to their use by any but expert psychologists.

(i) The necessity of selecting examiners of the right temperaineut and training to make correct evaluation of the child's reactions to the tests, is obvious. Much harm has already been done and is being done, by the exploitation of the system by incompetent and superficially trained examiners.

The fact is now conceded that this is not justified. I was at first inclined to share this view, but after observing the working of the system as applied methodically and thoroughly to over 1,500 mental defectives and on over 1,000 school children (by Kuhlmann and under his direction), and after observing the work of different teachers under training in the use of the system, I have become convinced that this is unnecessary. What is more to the point, however, Goddard, Kuhlmann and other psychologists do not consider it necessary that the examiner be a trained psychologist. He should, however, have the psychologic attitude toward the child, and should be properly trained in the use of the tests and how to evaluate the reactions to them. Some people make good examiners and others do not, with the same training. Women, other things being equal, make the best. The situation is somewhat analogous to that of the constructing engineer and the operating engineer of a locomotive. The mechanism is invented and perfected by the psychologists and they have given full instructions as to its use. The examiner must learn the technic and must have the right temperament, especially the faculty of getting the full confidence of the child and securing full and free response. The psychologists can be depended on to remedy any defects discovered in the mechanism.

Already the system is being applied in many public schools especially in the large cities, either as a regular test for special cases or for making surveys. So much for the system of measuring intelligence.

Physicians properly conservative

The physician, naturally conservative, not inclined to be carried away by new "fads," may properly inquire:

1. Why should our profession employ a system of measuring intelligence which at most only deals with "symptoms?"
2. Assuming that it will be of service in determining intellectual levels, how is the result to be translated into definite diagnosis or prognosis; in other words, what amount of retardation indicates mental defect?

Mental functioning must be studied.

The symptoms—the functioning of a partially developed mind—are exactly what the physician is after at that point in the history of any given case when the mental tests would be called into requisition. The arresting cause, whether it be a lack of hereditary force in the germ plasm, chemical poison, sepsis, or traumatism, has done its work and the physician is studying the patient as an imperfect human

product; hence, the problem is, what is to be done for this patient? What training and development is he capable of? We all know that normal children are capable of learning to act, to think, and to inhibit action, with increasing effectiveness as they increase in age and experience, and, inversely, the amount expected of a child will be proportionately less as its age approximates birth. If, then, the child passes the age of 13 with a markedly retarded mental development, this is recognized as a defect and the intellectual level at which the development stopped will in general determine the educational capacity of the child and will be expressed by his mental age, or the age of a normal child at the time when this ability is found. Thus, these "symptoms," while not pointing to any definite cause or pathologic condition, as might be the case in a type of fever, are an index of the condition that must be known to suggest the treatment and training to be employed.

Plane of arrest largely determines educational capacity.

The next question, as to how much retardation constitutes mental defect, while not answerable with scientific accuracy, does not leave a margin of uncertainty that invalidates the general usefulness of the examinations. Suppose we say arbitrarily that three years' retardation at 13 indicates positive mental defect, this will leave a safe margin, as less retardation usually represents incompetence. The examiner can make a very workable table for practical use based on this assumption, and intended to apply to lower ages. Suppose the retardation to be three years at 13, then we may assume for practical purposes that 3-13 is the constant factor of retardation. At 9 years the retardation would be approximately 2 1-13 years and at 6 years, 1 5-13 years, etc. If a greater retardation is found, it simply means the use of a correspondingly larger factor and a lower mental age.

Degree of retardation required to constitute mental deficiency.

Now it is not to be understood that this means of determining the retardation at any other age than the one at which the examination is made is scientifically correct. It is only a ready method of making an approximate estimate. Psychologists have not worked out the problem of the rate of the evolution or development of mind in normal children. That is, how it varies in uniformity from birth to 13, nor is it yet ascertained whether there is a definite relation between the normal rate and the retardation rate in mental defectives.

Mathematical conclusions only approximately correct.

Again, we would not expect that mental retardation from traumatic and possibly other postnatal causes, would follow any rule, because the cortical areas or nerve lines affected would obviously vary

Arrest from traumatism may be abrupt and complete.

greatly. As 60 per cent, to 70 per cent, of all cases of mental defect are probably hereditary, the field for the uses of the tests is not greatly limited by this fact, and they are useful, obviously in acquired cases. Some of these cases in which the cause is traumatic, will show a sudden and complete arrest of development at the time of the accident.

Poor judgment and inhibition with slight retardation.

Now as the higher faculties are the last to develop, it is obvious in theory and verified by experience that with one or two years' retardation even, there is usually poor judgment, lack of forethought, weak inhibition in relation to appetites, and in general, lack of capacity and resistance to cope with the social and economic conditions of life, although capable of doing useful work under the guidance of a higher intelligence. With slight retardation, fair success depends entirely on the environment. Education, of course, is to be determined by the intellectual level found to exist and expressed in terms of mental age—temperament or adaptability to different occupations being considered, as with normals. It is the capacity for manual or routine employment, as a result of training that confuses the uninformed as to the nature of mental defect, because the kind of work mental defectives do so well—and which has resulted from education of the existing capacity—has not called for the exercise of higher control faculties that would be necessary in a successful life of independence. It must be remembered that after all the real test is ability to succeed in life; laboratory tests are only to determine whether or not the faculties essential to insure proper reactions to the natural conditions of life are there and available. The person's variations in temperament or reactions to various interests must be reckoned with. For example, the average mental age of fifty boys in one of our farm colonies at Faribault is 6.9. The highest mental age represented is 11. This latter "boy" is 46 years old and can do any kind of work under general supervision required of a farm hand. He has no initiative, and when an assignment has been completed he will sit down and wait for another. He happens to be of a quick temper and will resent orders from any one but the head of the department. He will milk six or seven cows and do it well, but he is not a good teamster, largely by reason of his temper.

Manual capacity developed early.

Laboratory-tests must be checked by actual life success or failure.

Same varieties of temperament as with the normal.

There are two "boys" each with a mental age of 3; one age 51, does a little work sweeping walks and doing errands, though he cannot talk and of course cannot read, so must carry notes as

messages. He will do his sweeping regularly without being told. Of course the whole amount of work done is but little, though it is a sort of an epitome of his whole life. The other 3-year mental-age case can do good work directly under supervision, in digging post-holes and loading posts on wagons, etc., yet if not watched, will walk off aimlessly. A peculiarity about him in the hayfield is that he can spread the hay after the mower, but cannot pitch it.

One boy," mental age 4, 26 years old, milks six cows night and morning and does it well. He recognizes the time to start by the sound of the signal bell and gets his pails and starts without further instructions. This is the only thing he has learned to do independently, and he is neat and clean.

One "boy," mental age 6, aged 32, handles an ox-team entirely alone, feeding, hitching, driving and caring for them. He does whatever is assigned with a team without direct oversight and sticks to it until completed. He is interested in his work and will go and finish, uninstructed, work left incomplete by any of his comrades.

Most of the teamsters who handle horses on wagons and farm tools are of 6, 7, and 8 years mental age—steady but shiftless, and needing considerable supervision.

Thus defectives of the same mental age react quite differently to the same occupations.

Three years' retardation mental deficiency.

From this it will be better understood that three years' retardation is a safe margin for the average physician to use in diagnosis.

Present tests apply to intellectual levels only.

So far, we have considered intellectual levels only. Now, there is another class of cases of mental defect that, strangely enough, are quite often recognized as mentally defective, though the test shows them to be normal intellectually. They do not react normally to their environment, even when this is excellent, either from lack of power to inhibit emotion and action, from lack of ethical conception, or lack of initiative and ambition. There seems to be a lack of coordination between the intellectual and the emotional phases of the mind. As they come to us for examination, the first question raised in each case is, Has this child had a good early training? In many cases the children are orphans and there is good reason to infer that their training has not been good; shifted as they have been from place to place and deprived of an affectionate and sympathetic parental influence, the emotional nature has not always had a healthy and normal development. Notwithstanding this, there are the other

cases, by far the most numerous, that under the same environment develop normally, suggesting the probability that there was something fundamentally wrong in the mental makeup of some, at least, of these children. Then there is the occasional case that has had the very best environment and training, including excellent discipline, and yet makes an absolute failure of life and becomes a wreck and even outcast. It seems therefore—these children all developing to be mentally defective—that we have ample justification for recognizing at least one other group of mental defectives than the one before discussed, which is characterized by low intellectual levels that can be determined by the Binet-Simon tests.

Moral defectives not yet determined by laboratory methods.

Classification of mental defectives.

This leads us to the subject of classification of defectives, generally, and a word as to the use of the terms. In 1910 the American Association for the Study of the Feeble-Minded, recognizing the importance of the long-neglected standardization of terms, and also recognizing the fact that the application of the system of measuring intelligence to which Goddard had called attention the previous year, had not only made it possible to classify on the basis of mental age, but also would doubtless lead to other differentiations, adopted tentatively, only, a classification of intellectual grades, as follows:

	( Moron	Mental age, 8 to 12.
Feeble-minded	-s Imbecile	Mental age, 3 to 7.
	( Idiot	Mental age, 0 to 2.

The whole question of the "moral imbecile," "defective delinquent," and other special and emotive types, was set aside for further consideration.

It seems to me that we are now approaching the time when specific groups must be recognized of those who fail to conform, through developmental defect other than that of the intellect. The psychologic scheme could be completed by naming each group by the defective mental quality, to which non-conformity is due, as "moral deficiency"—lack of ethical conception, "inhibitive deficiency"—lack of power to control one's actions, etc.

It should be noted also that the terms "feeble-mindedness" and "mental deficiency" are equivalent and general. The morons are the higher group of intellectual defectives that can earn their own living under proper conditions; imbeciles, the intermediate group that cannot

earn their own living, but can protect themselves from common physical dangers; idiots, the lowest group, that cannot protect themselves from common physical dangers.

The term 'retardation' is used in two senses, (1) in reference to school work where there is a failure to keep up with the grade, or pedagogic retardation, depending on remedial causes, and (2) in reference to cases of actual mental defect.

Resume-

In conclusion, the purpose of this paper is to urge on the physicians the adoption of the principle of measuring intelligence in all cases of abnormal mentality in children as a part of routine practice. The desirability of early diagnosis of mental deficiency is self-evident, (1) for the information of the physician that he may advise intelligently, (2) for the sake of the parents, who should be wisely guided in their handling of the child, that they may not expect too much and yet may do the practical thing, which is the most economical, and, (3) in the interest of the child, (a) that he may neither be neglected at the time when much can be done, nor forced like a hot-house plant to struggle for years in efforts to do things beyond his capacity, and, (b) that his limitations may receive protection from the influences that would tend to criminality.

There is no reason now why the physician should not have available a good examiner and make use of this clinical assistance. He can in this way confirm his diagnosis of mental deficiency or disprove the condition, as the case may be, in a large number of cases. The doubtful cases will thus be reduced to a minimum. The Binet-Simon tests, in the hands of a qualified examiner, are practical for the purpose of determining intellectual levels, and *no* one need hesitate in making them available because of improvements that may be found necessary thereafter, or certain limitations that characterize them in minor details.

Bear in mind that no laboratory method of diagnosing emotive defects is yet available, or in other words, any method of determining in advance whether or not a child who passes the intellectual tests will succeed in life under ordinary conditions, while, on the other hand, mental defect showing a retardation of intellectual development amounting to three years means failure in life under ordinary conditions.

Possibility of extension of laboratory methods.

Psychologists are already making some headway in determining occupational ability by laboratory tests, and this is very suggestive of future possibilities in determining facts of larger prognostic value, by

laboratory reactions in the domain of "emotion" and "will."

Heredity to be considered in doubtful cases, Of course, the heredity in the case should be taken into consideration, especially when mental defect is found to be slight, or when non-conformity is not associated with intellectual defect or any psychosis.